



# Technical Guide for Upgrading or Migrating to Citrix XenApp™ 5 Platinum

Citrix XenApp 5 Platinum provides two platforms:

Microsoft® Windows Server® 2003 and Microsoft Windows Server 2008.

Which platform addresses the requirements of your environment?

Should you upgrade or migrate?

This document covers design considerations, product capabilities and platform differences, as well as installation steps, and it serves as a technical guide for administrators and Citrix partners.

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## Introduction

In February 2008, Citrix® announced that the Presentation Server™ product name would be renamed XenApp™ and that the former name would be retired. As such, the first release with this new product name is Citrix XenApp 5.

In September 2008, Citrix introduced XenApp 5 for Windows Server 2003 and XenApp 5 for Windows Server 2008. With the XenApp 5 release, additional features and functionality have been incorporated to improve the application virtualization experience.

This white paper covers XenApp 5 design considerations, product capabilities, and upgrade/migration details. It serves as a technical guide for XenApp architects and administrators, as well as Citrix partners helping customers with these processes.

To facilitate upgrading or migration to XenApp 5, this document contains the following sections:

- **Maximizing Success** – describes how to avoid pitfalls with tips for successful upgrades and migrations
- **XenApp 5 Features Overview** – covers new capabilities and functionality available in this version
- **XenApp 5 Platinum Components** – describes each XenApp 5 component, with upgrade/migration steps
- **XenApp 5 Upgrade/Migration Scenarios** – explores three common scenarios and design decisions related to each

## Upgrade vs. Migration

These following terms are used throughout this document and are not interchangeable. The terms upgrade and migration as they apply to servers and farms are defined below:

Term	Description	Requirement	Notes
Server Upgrade	Installing a newer version of XenApp over an existing version	Cannot be based on operating system upgrade	There are no farm member server requirements when upgrading from Presentation Server 4.5 to XenApp 5 for Windows Server 2003
Server Migration	New installation of XenApp on clean OS	Clean operating system	An example is XenApp 5 for Windows Server 2008
Farm Upgrade	Existing farm and data store maintained	Upgrade or migration of at least one member server	Existing settings, such as farm settings and published applications, are maintained
Farm Migration	Creation of new farm and data store	New installation of at least the first server	All farm settings must be configured

XenApp 5 for Windows Server 2003 is based on the same Server CD as Presentation Server 4.5. An upgrade to XenApp 5 for Windows Server 2003 offers updated components only. Thus, it requires that Presentation Server 4.5 is already installed on all servers.

Presentation Server 4.0 for Windows Server 2003 can be upgraded to Presentation Server 4.5 or XenApp 5 for Windows Server 2003, which are based on the same Server CD installation.

Only XenApp 5 for Windows Server 2008 requires server migration. Citrix does not support upgrading the operating system before installing XenApp or any of its components; clean installation of the operating system is required. Thus, upgrading Windows Server 2003 to Windows Server 2008 is not supported.

Adding a XenApp 5 for Windows Server 2008 member server to a Presentation Server 4.0 farm, a Presentation Server 4.5 farm, or a XenApp 5 for Windows Server 2003 farm, regardless of zone designation, places the server farm into mixed mode. For example, if a pilot zone is used for pre-production testing and a new XenApp 5 for Windows Server 2008 server is introduced, the server farm is now running in mixed mode. Mixed mode based on a combination of Presentation Server 4.0, Presentation Server 4.5, and XenApp 5 is supported but should be used for the shortest reasonable period of time as administration differs and may be confusing, and unexpected issues may arise.

## New Terminology

As part of this release, Citrix also introduced several new product names. In particular, note the following:

Former Name	New Name
Program Neighborhood Agent client	XenApp plugin
Presentation Server client	XenApp plugin for Hosted Apps
Presentation Server Web client	XenApp Web plugin
Application Streaming client	XenApp plugin for Streamed Apps
Presentation Server Console	XenApp Advanced Configuration

## Reference Materials

In addition to this Technical Guide, please consult the respective Administrator's Guide for more details regarding the upgrade or migration steps that are discussed within this document. Each major component has an Administrator's Guide, as well as other recommended documents, that can be accessed as follows:

XenApp 5 Platform	Administrator's Guides	Other Recommended Documents
XenApp 5 for Windows Server 2003	<a href="http://support.citrix.com/xenapp5/2003/docs/en">http://support.citrix.com/xenapp5/2003/docs/en</a>	<a href="#">XenApp 5 for Windows Server 2003 Installation Checklist</a> <a href="#">XenApp 5 for Windows Server 2003 ReadMe</a> <a href="#">XenApp 5 for Windows Server 2003 Upgrade Guide</a>
XenApp 5 for Windows Server 2008	<a href="http://support.citrix.com/xenapp5/2008/docs/en">http://support.citrix.com/xenapp5/2008/docs/en</a>	<a href="#">XenApp 5 for Windows Server 2008 Installation Checklist</a> <a href="#">XenApp 5 for Windows Server 2008 ReadMe</a> <a href="#">XenApp 5 for Windows Server 2008 Installation Guide</a>

# Maximizing Success

Careful planning is the single most important step to maximize success of a migration or upgrade to XenApp 5. Administrators should ensure that user requirements and business needs continue to be addressed throughout the transition, particularly in server farms that are large or host mission-critical applications.

## Planning

Lack of planning is the most common pitfall associated with upgrading or migrating to a new version of XenApp. Key areas related to successful planning are focused on four steps: defining requirements, the design document, testing, and implementation plan.

### 1. Define requirements and limitations

The first step is to identify and confirm business, technical, and user requirements. Business requirements may include service level agreements (SLAs), personnel needs and cost of ownership. Technical requirements may include incorporating multiple back-end data sources. User requirements may include pass-through authentication and ease of access.

Some types of limitations exist within every organization, and these can impede the success of the transition to XenApp 5 if not acknowledged and addressed properly. For example, heavily utilized WAN links may impact the performance of ICA traffic, but if understood, this issue can be addressed as part of the subsequent design and implementation.

Defining requirements and understanding limitations will ensure widespread acceptance of the new XenApp environment.

### 2. Documented design

The design document is a blueprint for the new environment, much like a blueprint for a building. It incorporates new features and major changes that will affect the server farm.

A detailed design document should be created whether upgrading or migrating, and all business, technical, and user stakeholders should provide input and comment into the proposed design. The design document incorporates the design decisions associated with each component and functional area, including:

- License server
- Data store
- XenApp farm/server configuration
- User interface and access
- Application delivery
- Monitoring and management
- Profiles and policies
- Network

Although it takes extra time to create a design document, administrators find it helpful to clearly state present conditions, deltas and/or future characteristics of the new environment. Typically, the time, effort, and expense associated with creating a documented design avoids the time otherwise wasted by having to address oversights and correct multiple issues. By learning the limitations and requirements of the current environment, raising design concerns that may impede success, and planning for growth, most organizations find that investing in a carefully planned design can positively impact the bottom line through the

time and cost savings brought about by this proactive approach. In short, bypassing the design process may result in compromised environmental stability and may require additional work to address unplanned issues.

If an organization cannot undertake a design on its own due to time or resource constraints, external consultants can often provide expertise and a more objective viewpoint. Citrix Consulting or Citrix partners can be engaged for this work.

### 3. Testing/Design Validation

Testing is required before implementation to ensure that the proposed design will function correctly. This step is typically done during or immediately following the design phase. For example, if an application does not function properly on Windows Server 2008, this should be revealed during the Testing phase.

Testing within a production environment is not recommended by Citrix and may lead to functionality issues that affect users. A small-scale test farm that is segregated from the production farm is recommended and should be permanently designated for ongoing testing.

Testing should be based on application functionality, performance, and user acceptance. Tools such as Citrix EdgeSight for Load Testing can be used for scalability testing to estimate reliably the number of physical or virtual servers that will be required. This requires production-like server hardware and a laboratory environment.

Application Performance Monitoring powered by EdgeSight 5 provides the ability to gather data regarding the user experience from both a synthetic and realistic session perspective, whereas Resource Manager powered by EdgeSight 5 provides the realistic session data only.

To be effective, the use case scenarios tested – including results – must be documented well. This prevents administrators from testing similar or previous scenarios, and provides a firm basis for determining the best solution.

### 4. Implementation plan

Most IT projects incorporate detailed project plans, and implementing XenApp 5 should be no exception. Based on the design document, a project plan based on tasks, timelines and resources should be created.

The implementation plan should include the following:

- Server build process
- Installation of XenApp and configuration of settings
- Application packaging and installation
- Help desk training
- User training
- Pilot/staged rollout (if applicable)
- Rollback

Citrix has found that successful upgrades and migrations generally follow each of these steps. Fewer technical, business, and user issues, a stable environment, and high user acceptance of the solution are the characteristics of successful implementations.

The [Citrix Certified Integration Architect](#) courseware and examination track provides more information regarding the analysis, design, test, and implementation phases.

## Tips for Successful Upgrades and Migrations

Citrix Consulting has worked with thousands of customers to design new XenApp environments, as well as assist with transition planning. In addition, Citrix Technical Support Technical Relationship Managers have helped customers during transitions to the newest versions, most commonly when issues have arisen. Aside from proper planning, the following recommended practices help avoid issues and maximize success:

### New functionality

When planning an upgrade or migration, consider the new features now available in XenApp 5 and how the associated functionality should be incorporated into the server farm. It is rare to incorporate every new feature, and the architect must determine which specific features will be beneficial to the environment. For example, if Preferential Load Balancing has been deemed advantageous, it is important to thoroughly understand the technical functionality and implementation options.

### Licensing

Current and planned licensing requirements should be reviewed well in advance of the implementation. This includes Citrix licensing as well as Microsoft Windows Server, Terminal Services, and application licensing. Citrix License Server 11.5 is required for XenApp 5 functionality.

### System monitoring

To understand the health of the system, one or more monitoring tools should be incorporated into the new environment, with customization to provide alerts based on metrics associated with hardware, software, and usage requirements. Environments that have poor or no system monitoring of XenApp servers or where Citrix administrators have no insight into monitoring data have traditionally had the highest number of issues.

With the Platinum edition of XenApp 5, administrators can use Application Performance Monitoring powered by EdgeSight 5 to effectively monitor the environment. Enterprise edition customers can use Resource Manager powered by EdgeSight technology. Alternatively, third-party tools can be used.

### Database

Because various Citrix infrastructure components require databases, consider the database type that will be most efficient and effectively supported. Consult the product documentation in order to ascertain which Citrix components can be based on specific database types. All Citrix database requirements within the XenApp 5 release can be based on SQL Server 2005 Service Pack 2.

### Operating System

Citrix does not support operating system upgrades for any of its components. For example, an administrator should not upgrade Presentation Server 4.5 on Windows Server 2003 to Windows Server 2008 and then XenApp 5. All components that will be based on Windows Server 2008 must be based on a clean installation of the operating system.

### Plugins (formerly known as clients)

Test and install XenApp plugins on client machines before addressing server-side components. This ensures that any end-user issues with plugins can be addressed before the server-side deployment actually takes place. On client devices, manually uninstall previous versions of the Streaming client and Program Neighborhood Agent.

## Training

Providing training for administrators, help desk associates, and users proactively ensures success. When all associated communities understand the transition and have been effectively prepared for it, the number of issues declines dramatically.

## Hardware and software vendor support

Once the various hardware and software vendors have been selected, strongly consider purchasing support agreements. For example, if running a mission-critical application, having a contract that specifies four-hour support for hardware parts saves time and frustration when an issue arises.

## Redundancy

Single points of failure should be identified and avoided wherever possible. For example, components such as Terminal Services Licensing and Web Interface should never be deployed without redundancy, and applications should never be published to a single server. Because each XenApp server can temporarily dole out Citrix licenses, additional redundancy of the Citrix licensing component is optional.

Sufficient redundancy should be incorporated into the environment in order to ensure that users can access applications without interruption.

## Automated server build

Having a repeatable way to build or rebuild XenApp saves time and resources. Having a mechanism to complete a server build quickly and easily is essential, because it may be required at an inconvenient time, perhaps when administrators need to attend to other emergencies. Ensuring server consistency also minimizes troubleshooting efforts.

Citrix Provisioning Server, which is included with XenServer Platinum and all editions of XenDesktop, can be used to quickly deploy server builds to both physical and virtual servers. Consider a disaster recovery scenario wherein a large number of physical or virtual XenApp servers must be deployed to an alternate data center quickly, and it is easy to understand the benefits that this tool can provide.

## Virtualized or shared functionality servers

The use of virtualized servers is becoming standard operating procedure within many organizations. XenApp 5 is certified to run on multiple virtualization platforms, including Citrix XenServer and Microsoft Hyper-V. The decision as to which servers should be virtualized is dependent upon the environment.

Depending on the size of the server farm, XenApp infrastructure component functionality may be shared among servers. For example, the Citrix License Server sometimes also functions as the backup Web Interface server because IIS is already installed and generally low resource requirements.

Decisions relating to whether XenApp components should be placed on virtualized or shared functionality servers are based on a number of “it depends” factors, such as:

- What are the resource requirements of the various Citrix components?
- Can the components or applications under consideration be co-located without issue?
- Can the server hardware effectively support virtualized servers?
- What is the overhead of the server virtualization solution?

The potential shared resource or virtualization solution should be thoroughly tested in order to ensure the required functionality and scalability.

## XenApp 5 Features Overview

XenApp 5, released in September 2008, XenApp 5 provides a “better than installed” experience for both end users and IT. Based on internal testing, Citrix has found that applications start up to 10 times faster, the end user experience is dramatically improved and application management costs are lowered by more than 25 percent over previous versions. This section reviews the most significant features of XenApp 5, as well as sample use cases.

Feature	Description	Sample use case
Application Streaming	Application Streaming now includes inter-isolation communication, HTTP/S streaming, and differential updates for offline applications.	A remote user needs to have three application profiles, each containing Microsoft Office, streamed securely to a remote location. With inter-isolation communication, Microsoft Office only needs to be streamed once, and the profile can be streamed from an SSL-enabled web server.
Preferential Load Balancing*	User sessions and/or applications can receive higher priority and subsequently be granted more CPU resources.	A doctor accessing an emergency procedure database is allocated higher preference as related to both the load balancing decision and CPU resources than a hospital administrator processing insurance claims.
Special Folder Redirection*	Desktop and/or (My) Documents folder can be redirected without the use of Active Directory GPOs, minimizing administrative effort and eliminating user confusion when saving files.	Previously, users intermittently saved documents to the Documents folder on the local drive and the Documents redirected folder, and many help desk calls were generated because users perceived that documents had been lost. By using Special Folder Redirection, only one Documents folder is presented to users.
Web Interface User Interface and Authentication	Usability enhancements including mobile-sized interface, as well as Kerberos ticketing and generic RADIUS support available as authentication options through Web Interface 5.0.1.	The security manager of your company has directed that all authentication to corporate resources must occur by means of a new third-party RADIUS product.
IPv6 Communications	By means of Secure Gateway 3.1, secure external communications can be configured to occur by means of IPv6.	Because a government agency must adhere to a mandate to communicate by means of IPv6 addressing, the agency implements Secure Gateway 3.1 with IPv6.
ClearType Font Smoothing	To improve the user display, ClearType Font ClearType improves readability on LCD screens using sub-pixel rendering.	Windows Vista users report that their applications appear clearer when accessed locally as compared to XenApp-based applications, so the administrator enables ClearType Font Smoothing on the XenApp servers.
XPS Printing*	XPS printing can be enabled to optimize printing and reduce printer bandwidth requirements.	To address complaints by Windows XP- and Vista-based users in a remote office that have heavy printing requirements, an administrator enables XPS printing.
Installation Manager*	Installation Manager is now based on Windows Server 2008 Windows Task Scheduler and Powershell; it supports distribution of MSI, MSP, MST, and EXE files.	In order to automate the distribution of executable-based applications to XenApp servers, an administrator elects to use Installation Manager.

Active Application Monitoring	Sufficient data can be gathered and presented to document SLAs by means of Application Performance Monitoring powered by EdgeSight.	An outsourced IT vendor must document application availability and performance based on live and synthetic user sessions during each workday.
Self-Service Password Reset Only Deployment	Single Sign-On powered by Password Manager can be configured such that only self-service password reset functionality is enabled for users.	Company A has no requirement to enable password management for applications. However, due to a short password reset requirement, users frequently lock themselves out of their domain accounts after extended vacations or leave.

\*Features only available with XenApp 5 for Windows Server 2008. A complete list of the new features available with XenApp 5 can be found here: <http://www.citrix.com/xenappcomparativematrix>.

## XenApp 5 Edition Components

Before discussing upgrade and migration options, we will clarify the components that are incorporated into the XenApp 5 release based on license type, as shown below:

Server- and Client-Side Components	Advanced	Enterprise	Platinum
XenApp 5	✓	✓	✓
Web Interface 5.0.1	✓	✓	✓
Secure Gateway 3.1	✓	✓	✓
Application Streaming 1.2		✓	✓
Resource Manager*		✓	✓
Installation Manager**		✓	✓
SmartAuditor 1.2			✓
Application Performance Monitoring (EdgeSight 5)			✓
Single Sign-On (Password Manager 4.6 w/SP1)			✓
EasyCall Plugin (not appliance)			✓
WANScaler Plugin (not appliance)			✓

\*A new version of Resource Manager is included with XenApp 5. Environments based on Windows Server 2003 can continue to use the existing version of Resource Manager or transition to the new version of Resource Manager, which is powered by EdgeSight technology. Environments that are based on Windows Server 2008 can only use the new Resource Manager.

\*\*A new version of Installation Manager is included with XenApp 5 for Windows Server 2008, which leverages the Windows Server 2008 Task Scheduler. Environments based on Windows Server 2003 will continue to use the existing version of Installation Manager.

Based on the XenApp license type that an organization has purchased, the specific components shown above could be implemented within the environment. It is not a requirement to use all of the available components based on license type. As such, as part of the planning process, the functionality of each component should be considered and its use determined.

For the purposes of this document, all of the server-side and client-side components that are customarily installed on XenApp 5 or related servers will be discussed. Any client-side plugins that are installed only on the end-user device, for example, WAN Optimization plugin and SmartAccess plugin, are beyond the scope of this document. Please note that Platinum licensing includes licensing for Password Manager as installed on either XenApp or client devices; however, only the XenApp server aspect will be addressed within this document.

## XenApp 5 Operating System and Platform Support

After determining the server-side components that will be implemented within the environment, consider the operating system and platform that each supports.

Server-Side Component	Windows Server 2003 x86	Windows Server 2003 x64	Windows Server 2008 x86	Windows Server 2008 x64
XenApp 5	✓	✓	✓	✓
License Server 11.5	✓	✓	✓	✓
Web Interface 5.0.1	✓	✓	✓	✓
Secure Gateway 3.1	✓	✓	✓	✓
Application Streaming Profiler 1.2	✓	✓	✓	✓
Resource Manager for Presentation Server 4.5	✓	✓		
Resource Manager powered by EdgeSight technology	✓	✓	✓	✓
Installation Manager for Presentation Server 4.5	✓	✓		
Installation Manager for XenApp 5			✓	✓
SmartAuditor 1.2 Broker, Policy Console, and Database	✓	✓		
Application Performance Monitoring powered by EdgeSight 5	✓	✓	✓	✓
Single Sign-On (Password Manager 4.6 w/SP1)	✓	✓	✓	✓

In addition, all agents and plugins that may be required to support Citrix server functionality are available for both the Windows Server 2003 and Windows Server 2008 operating systems, as well as both the x86 and x64 platforms. Specifically, these agents and plugins are:

- XenApp Plugin for Hosted Apps
- XenApp Plugin for Streamed Apps
- Password Manager Plugin
- EasyCall Plugin
- EdgeSight Agent
- SmartAuditor Agent

## XenApp 5

XenApp 5 provides distinct versions based on Windows Server 2003 and Windows Server 2008. All new features are available for the Windows Server 2008 platform, whereas the majority of the new features are available for the Windows Server 2003 platform.

Transitioning to XenApp 5 will likely be based on one of the following:

Current Version and Operating System	Desired Version and Operating System	Transition
Presentation Server 4 for Windows 2000 Server	XenApp 5 for Windows Server 2003	Migrate to Presentation Server 4.5 on Windows Server 2003* and upgrade components
Presentation Server 4 for Windows 2000 Server	XenApp 5 for Windows Server 2008	Migrate to XenApp 5 for Windows Server 2008
Presentation Server 4 for Windows Server 2003	XenApp 5 for Windows Server 2003	Upgrade to Presentation Server 4.5* and upgrade components
Presentation Server 4 for Windows Server 2003	XenApp 5 for Windows Server 2008	Migrate to XenApp 5 for Windows Server 2008
Presentation Server 4.5 for Windows Server 2003	XenApp 5 for Windows Server 2003	Upgrade components only
Presentation Server 4.5 for Windows Server 2003	XenApp 5 for Windows Server 2008	Migrate to XenApp 5 for Windows Server 2008

\*If the transition listed above requires that you upgrade or migrate to Presentation Server 4.5 on Windows Server 2003, please see the *Technical Guide for Upgrading/Migrating to Presentation Server 4.5 Feature Pack 1* as available from the Citrix Knowledge Base as article CTX114618.

The information presented below will guide you through upgrading or migrating to XenApp 5 on Windows Server 2003 or XenApp 5 on Windows Server 2008. Please also reference the [Upgrade/Migration Scenarios](#) section.

### XenApp 5 for Windows Server 2003

XenApp 5 for Windows Server 2003 is based on the Presentation Server 4.5 code base and installation. With the exception of optional or updated plugins or agents, there is no installation process or requirement to deploy any new binaries on each member server.

However, please note that Citrix has released Hotfix Rollup Pack (HRP) 3 and will be releasing subsequent HRPs during the lifetime of this product, and the most recent HRP should be consistently installed onto the farm servers. Citrix recommends that hotfixes and HRPs are installed onto each server based on the following order: Data Collector, Database Connection Server (if exists), Primary Farm Metric Server (if exists), Backup Farm Metric Server (if exists), and then member servers.

For XenApp 5 for Windows Server 2003, only the components shown on the table below have been updated. Only two components, License Server 11.5 and Access Management Console 3.0, are required, and all other updated components are either recommended or optional.

In order for the Presentation Server 4.5 farm to have updated XenApp 5 functionality, Citrix requires or recommends installing the following subject to applicability based on edition:

Component	Required	Recommended	Optional
License Server 11.5	✓		
Access Management Console 4.6.1	✓		
Hotfix Rollup Pack 3		✓	
Documentation		✓	
Web Interface 5.0.1		✓	
Application Streaming Profiler 1.2		✓	
Application Performance Monitoring powered by EdgeSight		✓ (Platinum)	
Resource Manager powered by EdgeSight		✓ (Enterprise)	
Secure Gateway 3.1			✓
Single Sign-On powered by Password Manager			✓

When upgrading from Presentation Server 4.5 without Feature Pack 1, Visual C++ Runtime and .NET 2.0 SP1 must be installed before proceeding with the installation. In addition, the latest Hotfix Rollup Pack (HRP) should be installed.

Although not required, Citrix recommends that the Documentation installation should be completed first so that you have access to the ReadMe file and other reference material in the event that issues are encountered. Next, the License Server 11.5 should be installed, which is downloadable from MyCitrix. Except in very small farms, the Citrix License Server and Web Interface functionality is generally hosted on distinct servers where XenApp is not co-located.

If you install both Resource Manager for Presentation Server 4.5 and Resource Manager powered by EdgeSight, disable metric collection within Resource Manager for Presentation Server 4.5.

<b>Upgrade/Migration Steps to XenApp 5 for Windows Server 2003</b>	
<b>Upgrading from Presentation Server 4.5 with or without Feature Pack 1 to XenApp 5 for Windows Server 2003</b>	<b>Migrating from any previous version to XenApp 5 for Windows Server 2003</b>
<ol style="list-style-type: none"> <li>1. If upgrade is from Presentation Server 4.5 without Feature Pack 1:               <ol style="list-style-type: none"> <li>a. If .NET 2.0 SP1 or higher is not present, install it from the Support folder of the CD</li> </ol> </li> <li>2. Ensure that Java Runtime Environment 1.6 Update 5 or higher is installed.</li> <li>3. Upgrade Documentation, License Server, Access Management Console and Web Interface in this order.</li> <li>4. Install Hotfix Rollup Pack 3 on each server.</li> <li>5. Install or upgrade other components as deemed necessary.</li> </ol>	<ol style="list-style-type: none"> <li>1. Install Windows Server 2003 (including .NET SP1 or higher and Java Runtime Environment 1.6 Update 5 or higher) and Presentation Server 4.5 Feature Pack 1.               <ol style="list-style-type: none"> <li>a. Replace Documentation, License Server, Access Management Console, and Web Interface with XenApp 5 for Windows Server 2003 components.</li> <li>b. Install Hotfix Rollup Pack 3 on each server.</li> </ol> </li> <li>2. Install other components as deemed necessary.</li> </ol>

# XenApp 5 for Windows Server 2008

XenApp 5 for Windows Server 2008 must be deployed based on a clean installation of the operating system. Citrix does not support operating system upgrades for any components.

The installation binaries for XenApp 5 for Windows Server 2008 are unique to that operating system. Also, when installing XenApp 5 for Windows Server 2008, note that Autorun (available as autorun.exe on the installation media) must be used to begin the installation process. Prior to initiating the installation, Citrix strongly recommends reviewing the [Installation Checklist](#), [ReadMe](#) and [Citrix XenApp Installation Guide](#) in order to ensure that all prerequisites are addressed. These documents are available from <http://support.citrix.com/xenapp5/2008/docs/en>. For example, the table below shows the basic installation process; however, if you plan to enable port sharing between the Citrix XML Service and IIS, then the Web Server (IIS) role is required.

Installation of the Citrix License Server 11.5 is required, and Citrix recommends doing so as the first step in order to ensure co-existence with new and legacy components. Installation of Web Interface within the environment is not required but highly recommended. Lastly, at least one Terminal Services License Server must exist within the environment.

When installing XenApp 5 for Windows Server 2008, you may see several benign error messages:

- An error related to a missing file: mstlsapi.dll. If XenApp plugin 10.2x or older will be used by client devices, first install a Microsoft hotfix, <http://support.microsoft.com/kb/949914>.
- If you have not installed Password Manager, during installation of the Access Management Console, an error message appears indicating that Microsoft Visual C++ 2005 Redistributable is not installed; this is required only in order to install the Citrix Password Manager Console.

<b>Upgrade/Migration Steps to XenApp 5 for Windows Server 2008</b>	
<b>Upgrading from Presentation Server 4.5 with or without Feature Pack 1 to XenApp 5 for Windows Server 2008</b>	<b>Migrating from any previous version to XenApp 5 for Windows Server 2008</b>
<ol style="list-style-type: none"> <li>1. There is no upgrade path.</li> </ol>	<ol style="list-style-type: none"> <li>1. Install Windows Server 2008, including prerequisites:               <ol style="list-style-type: none"> <li>a. Application Server role</li> <li>b. Terminal Services role</li> <li>c. Java Runtime Environment 1.6 Update 5 or higher from <a href="http://www.java.com">http://www.java.com</a></li> <li>d. Web Server (if port sharing)</li> </ol> </li> <li>2. Install License Server 11.5 (see below).</li> <li>3. Install Access Management Console.</li> <li>4. Install Web Interface (see below).</li> <li>5. Install XenApp 5.</li> <li>6. Install other components as deemed necessary.</li> </ol>

## License Server 11.5

The Citrix License Server 11.5 is required for XenApp 5 whether the environment is based on Windows Server 2003 or Windows Server 2008. The new license server is backwards compatible and will support previous Presentation Server versions. All processes related to obtaining and applying license files, as well as Subscription Advantage, remain the same. XenApp 5 requires that Subscription Advantage must be active as of August 27, 2008.

Upgrade/Migration Steps to License Server 11.5	
Upgrading from License Server 11.3	Migrating to License Server 11.5 on Windows 2000 Server, Windows Server 2003, or Windows Server 2008
<ol style="list-style-type: none"> <li>1. Ensure that MSI 3.0 or higher is installed.</li> <li>2. Install License Server 11.5</li> </ol>	<ol style="list-style-type: none"> <li>1. Install Windows 2000 Server, Windows Server 2003, or Windows Server 2008. Windows 2000 Server and Windows Server 2003 requires MSI 3.0 or higher and IIS. Windows Server 2008 requires Web Server (IIS) role.</li> <li>2. Install License Server 11.5</li> </ol>

## Web Interface 5.0.1

As with previous versions of Web Interface, access to virtualized applications is facilitated by means of a web site (XenApp Web site) or a client-side plugin (XenApp Services site).

Web Interface 5.0.1 was released with XenApp 5 and differs from Web Interface 5.0, which was released with XenDesktop earlier in 2008. Web Interface 5.0.1 can be used to consolidate multiple Presentation Server 4.0, Presentation Server 4.5, or XenApp 5 farms, as well as XenDesktop farms. Web Interface 5.0.1 has a completely new look and feel, as well as additional functionality. Through the administrative interface, administrators can configure new features such as Special Folder Redirection and ClearType Font Smoothing.

When upgrading Web Interface 4.0 or higher to Web Interface 5.0.1, note that centralized configuration is deprecated and there is no facility in the new version of Web Interface to create centralized configuration sites. However, administrators can still administer and upgrade existing sites. Citrix recommends that you first backup the existing WebInterface.conf and config.xml files in the event that an issue occurs during upgrade. In addition, installation of the updated Access Management Console is required before Web Interface can be installed.

Upgrade/Migration Steps to Web Interface 5.0.1	
Upgrading from Web Interface 4.0 or higher	Migrating to Web Interface 5.0.1 on Windows Server 2003 SP2 or higher or Windows Server 2008
<ol style="list-style-type: none"> <li>1. Ensure that .NET Framework 2.0 SP1 is installed.</li> <li>2. Install Web Interface 5.0.1.</li> </ol>	<ol style="list-style-type: none"> <li>1. Install Windows Server 2003 or Windows Server 2008. Windows Server 2003 requires IIS and .NET Framework 2.0 SP1. Windows Server 2008 prerequisites are: <ol style="list-style-type: none"> <li>a. Web Server (IIS) role, including IIS6 Management Compatibility and ASP.NET, and .NET Framework 3.5.</li> </ol> </li> <li>2. Install Web Interface 5.0.1.</li> </ol>

## Secure Gateway 3.1

Secure Gateway provides a server-based SSL VPN to facilitate ICA and CGP (Common Gateway Protocol used for Session Reliability) traffic over TCP ports 1494 and 2598, respectively. Based on requirements by some government agencies, Secure Gateway 3.1 includes new support for IPv6 secured external traffic. Although Secure Gateway is the only Citrix access mechanism for IPv6 secured external traffic as of September 2008, Access Gateway will have this capability in the future.

Secure Gateway 3.1 requires Web Interface and the Access Management Console within the environment for functionality.

<b>Upgrade/Migration Steps to Secure Gateway 3.1</b>	
<b>Upgrading from Secure Gateway 3.0 on Windows Server 2003</b>	<b>Migrating to Secure Gateway 3.1 on Windows Server 2003 or Windows Server 2008</b>
<ol style="list-style-type: none"> <li>1. Install the Microsoft IPv6 network component for IPv6 functionality.</li> <li>2. Install Secure Gateway 3.1.</li> </ol>	<ol style="list-style-type: none"> <li>1. Install Windows Server 2003 or Windows Server 2008 (including prerequisites).               <ol style="list-style-type: none"> <li>a. If Windows Server 2003, install the Microsoft IPv6 network component for IPv6 functionality.</li> <li>b. Install a certificate.</li> </ol> </li> <li>2. Install Secure Gateway 3.1.</li> </ol>

## Installation Manager

There are two distinct versions of this tool as included in the Enterprise and Platinum editions:

- Installation Manager for Presentation Server 4.5
- Installation Manager for XenApp 5 for Windows Server 2008

The latter is based on Windows Task Scheduler 2.0 and PowerShell 1.0 technologies. This new version of Installation Manager can be used to distribute applications based on MSI, MSP, MST, or EXE files but does not include a utility to package the applications.

<b>Upgrade/Migration Steps to Installation Manager for XenApp 5 for Windows Server 2008</b>	
<b>Upgrading to Installation Manager for XenApp 5 for Windows Server 2008</b>	<b>Migrating to Installation Manager for XenApp 5 for Windows Server 2008</b>
<ol style="list-style-type: none"> <li>1. There is no upgrade path.</li> </ol>	<ol style="list-style-type: none"> <li>1. On Windows Vista or Windows Server 2008 administration computer install:               <ol style="list-style-type: none"> <li>a. .NET Framework 3.5.</li> <li>b. PowerShell 1.0.</li> <li>c. Installation Manager Administration package.</li> </ol> </li> <li>2. On XenApp 5 for Windows Server 2008 servers install:               <ol style="list-style-type: none"> <li>a. .NET Framework 3.5.</li> <li>b. PowerShell 1.0.</li> <li>c. Installation Manager Utilities package.</li> </ol> </li> </ol>

## Application Streaming 1.2

Citrix has introduced several new application streaming-related features with XenApp 5. Most notably, inter-isolation communications, HTTP(S) streaming, and differential profiles have been added with this release. In order to implement the new features, profiles must be created and saved using the Application Streaming 1.2 Profiler or upgraded by means of the Application Streaming 1.2 Profiler and then saved. Also, the recipient device, whether a server or a Windows client, must have the new XenApp plugin for Streamed Apps pre-installed, as well as either the XenApp plugin or XenApp Web plugin.

As with previous versions, Citrix recommends that the Streaming Profiler be used to profile applications based on the server or desktop operating system on which it is installed.

The Application Streaming 1.2 Profiler supports the following Windows operating systems:

- Windows Server 2003 (32-bit and 64-bit)
- Windows Server 2008 (32-bit and 64-bit)
- Windows XP (32-bit and 64-bit)
- Windows Vista (32-bit and 64-bit)

Please note that support for all versions of Windows 2000 have been discontinued as of this version.

<b>Upgrade/Migration Steps to Application Streaming 1.2</b>	
<b>Upgrading from Application Streaming 1.1 Profiler on any supported Windows operating system to Application Streaming 1.2 on same Windows operating system</b>	<b>Migrating to Application Streaming 1.2 Profiler on any supported Windows operating system</b>
1. Install Application Streaming 1.2 Profiler.	1. Install Windows operating similar to target device. 2. Install the Application Streaming 1.2 Profiler.

# Application Performance Monitoring and Resource Manager powered by EdgeSight 5

XenApp 5 Platinum edition includes the new Application Performance Monitoring for XenApp powered by EdgeSight 5. Please note that only XenApp servers can be monitored with XenApp Platinum or standalone EdgeSight for XenApp licensing; if the EndPoints version is desired, it must be licensed separately and is beyond the scope of this document.

The new Resource Manager is also powered by EdgeSight 5 but is a limited functionality version. It is included with XenApp 5 Enterprise and Platinum editions based on either Windows Server 2003 or Windows Server 2008. Citrix recommends that Platinum license holders use the full-scale product.

EdgeSight 5 server and database components can be installed on Windows Server 2003 or Windows Server 2008. In addition, the following SQL Server versions are supported: SQL Server 2000 SP4 (on Windows Server 2003 only), SQL Server 2005, and SQL Server 2008.

Please note that at release in September 2008, XenApp 5 is supported on SQL Server 2008. However, because SQL Server 2008 was released only one month prior to the EdgeSight 5 release, Citrix recommends SQL Server 2005.

If you have EdgeSight 4.5 on Windows Server 2003 installed within your environment, upgrading to the newest version of EdgeSight can be accomplished by installing EdgeSight 5 on the existing EdgeSight 4.5 server. By doing so, all settings and the data are retained. The new department tree will match the XenApp server tree in the Access Management Console and cannot be altered. The new department structure is not immediate; it may take up to 12 hours for the new structure to appear.

Prior to upgrading, backing up the database is required as part of the installation process. Any steps taken to override this requirement may yield unsupported issues.

In addition, the EdgeSight 5 agent must be installed on each XenApp 5 server, whether it is based on Windows Server 2003 or Windows Server 2008. When using full EdgeSight feature set based on Platinum licensing, configure the agent for Advanced functionality. Although not recommended, the existing EdgeSight 4.5 agent can continue to be used; however, the agent device will be located in the EndPoint department hierarchy.

<b>Upgrade/Migration Steps to EdgeSight 5</b>	
<b>Upgrading from EdgeSight 4.5 on Windows Server 2003 to EdgeSight 5 on Windows Server 2003</b>	<b>Migrating to EdgeSight 5 on Windows Server 2008</b>
<ol style="list-style-type: none"> <li>1. Backup the existing EdgeSight database.</li> <li>2. Install EdgeSight 5 on the existing EdgeSight 4.5 console server in order to perform an upgrade to EdgeSight 5.               <ol style="list-style-type: none"> <li>a. If an EdgeSight database exists on the same or other server, it can be upgraded during the installation process.</li> </ol> </li> <li>3. Install the EdgeSight 5 agent on each XenApp server and reboot.               <ol style="list-style-type: none"> <li>a. Where XenApp 5 for Windows Server 2003 is in use, upgrade the existing EdgeSight 4.5 agent or if no EdgeSight agent exists, install it.</li> </ol> </li> </ol>	<ol style="list-style-type: none"> <li>1. Backup the existing EdgeSight database if it exists.</li> <li>2. Install Windows Server 2008 (including prerequisites), SQL Server (must install Database Services, Reporting Services, and Workstation components), and EdgeSight 5.               <ol style="list-style-type: none"> <li>a. If an EdgeSight database exists on another server, it can be upgraded during the installation process.</li> </ol> </li> <li>3. Install the EdgeSight 5 agent based on advanced functionality mode on each XenApp server and reboot.               <ol style="list-style-type: none"> <li>b. Where XenApp 5 for Windows Server</li> </ol> </li> </ol>

<p>b. Where XenApp 5 for Windows Server 2008 is in use, install the EdgeSight 5 agent.</p>	<p>2003 is in use, upgrade the existing EdgeSight 4.5 agent or if no EdgeSight agent exists, install it.</p> <p>c. Where XenApp 5 for Windows Server 2008 is in use, install the EdgeSight 5 agent.</p>
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When using the Resource Manager feature set based on Enterprise licensing, configure the agent for Basic functionality. The installation of Resource Manager is based on the EdgeSight media; the functionality subset is automatically enabled based on Enterprise licensing. Where Resource Manager for XenApp 5 powered by EdgeSight technology will be deployed, follow these steps:

<b>Upgrade/Migration Steps to Resource Manager for XenApp 5</b>	
<b>Upgrading from Resource Manager for Presentation Server 4.5 to Resource Manager for XenApp 5 for Windows Server 2008</b>	<b>Migrating to Resource Manager for XenApp 5 on Windows Server 2003 or Windows Server 2008</b>
<p>1. There is no upgrade path.</p>	<p>1. Install Windows Server 2003 or Windows Server 2008 (including prerequisites), SQL Server (if on the same server), and EdgeSight 5.</p> <p>2. Install the EdgeSight 5 agent based on basic functionality mode on each XenApp server and reboot.</p>

## Single Sign-On powered by Password Manager

Password Manager 4.6 with SP1 enables administrators to use the self-service password reset feature only within an organization. Platinum licensing includes Password Manager for both client desktops and XenApp servers based on the same user. However, where only the self-service password reset feature is used, these options exist:

- Customer can buy 1 Password Manager concurrent user license and be entitled to 10 self-service only users; or
- Customer can buy 1 Password Manager named user license and be entitled to 5 Self-Service only users

The Password Manager plugin should not be installed until after the Password Manager Console and Services have been installed and the central store has been created. In order to use only the self-service password reset feature, the Password Manager plugin must be installed on the client device.

<b>Upgrade/Migration Steps to Password Manager 4.6 w/SP1</b>	
<b>Upgrading from Password Manager 4.6 on Windows Server 2003 to Password Manager 4.6 w/SP1 on Windows Server 2003</b>	<b>Migrating to Password Manager 4.6 w/SP1 on Windows Server 2003 or Windows Server 2008</b>
<ol style="list-style-type: none"> <li>1. Install Password Manager 4.6 with SP1.</li> </ol>	<ol style="list-style-type: none"> <li>1. Install Windows Server 2003 or Windows Server 2008 (including certificate and other prerequisites).</li> <li>2. Create Central Store.</li> <li>3. Install Password Manager 4.6 with SP1.</li> </ol>

## SmartAuditor

While the SmartAuditor agent can now be installed on XenApp 5 for Windows Server 2008 servers and the SmartAuditor player can now be installed on Vista workstations, the SmartAuditor broker, policy console, and database must be installed on Windows Server 2003.

<b>Upgrade/Migration Steps to SmartAuditor 1.2</b>	
<b>Upgrading to SmartAuditor 1.2 on Windows Server 2003</b>	<b>Migrating to SmartAuditor 1.2 on Windows Server 2008</b>
<ol style="list-style-type: none"> <li>1. There are no components to upgrade.</li> </ol>	<ol style="list-style-type: none"> <li>1. Install the SmartAuditor agent on the XenApp 5 for Windows Server 2008 servers.</li> </ol>

# XenApp Upgrade/Migration Scenarios

Based on the definition of the terms [upgrade and migration](#) provided previously, this section will explore several scenarios, as well as the associated course of action.

## Scenarios

With the release of XenApp 5, the decisions associated with customer design projects have become more complex. The design project will most commonly take the form of one of the following scenarios in each of which it is assumed that the customer has the proper licensing:

- **Customer wants to upgrade Presentation Server 4.0 for Windows Server 2003 to XenApp 5 for Windows Server 2003.** In this case, the customer wants to maintain the existing data store and server farm configuration. Each server must be upgraded, and Hotfix Rollup Pack (HRP) 3 should be installed. In addition, the relevant components will also be upgraded. Lastly, .NET 2.0 SP1 or higher and Java Runtime Environment 1.6 Update 5 or higher are required.
- **Customer wants to upgrade Presentation Server 4.5 with or without Feature Pack 1 farm to XenApp 5 for Windows Server 2003.** In this case, the customer wants to maintain the existing data store and server farm configuration. This type of deployment is based on upgrading the relevant components only. If Feature Pack 1 is not installed, please note that .NET 2.0 SP1 or higher and Java Runtime Environment 1.6 Update 5 or higher are required. In addition, Hotfix Rollup Pack (HRP) 3 should be installed.
- **Customer wants to upgrade all servers in the existing Presentation Server 4.5 Feature Pack 1 farm to XenApp 5 for Windows Server 2003 and add several XenApp 5 for Windows Server 2008 servers to the farm until it can be transitioned to XenApp 5 for Windows Server 2008 in its entirety.** This case is similar to the previous one, except that some XenApp 5 for Windows Server 2008 servers are added to the farm. In this case, the customer wants to maintain a mixed farm based on the existing data store and server farm configuration.
- **Customer wants to migrate to a new XenApp 5 for Windows Server 2008 farm.** In this case, the farm migration is based on a completely new installation of XenApp that initiates a new data store and server farm.

Where possible, Citrix recommends the farm migration approach. This can be used as an opportunity for a clean, new implementation. Well-planned and thoroughly documented migrations avoid previous issues being carried forward.

When a farm migration is chosen, Web Interface can be effective in bridging the new farm and the old farm so that the transition is seamless to users. Either of the following approaches can be considered:

- Migrate entire application silos during a single outage window.
- Migrate users based on groups, such as business units, to the new farm. To accomplish this, create Active Directory groups for the published resources within the new farm, and control user membership to these groups.

In the subsections below, common design decisions are explored, as well as options and general recommendations. Your specific decisions may vary from general recommendations, based on the XenApp environment and requirements.

## Licensing and Client Decisions

The following licensing and client decisions are recommended or required as part of the upgrade or migration process in accordance with the three scenarios described above:

Item/ Scenario	CPS 4.0 upgrade to XenApp 5 for Windows Server 2003	CPS 4.5 upgrade to XenApp 5 for Windows Server 2003	CPS 4.5 upgrade to XenApp 5 for Windows Server 2003 plus some XenApp 5 for Windows Server 2008	XenApp 5.0 for Windows Server 2008 migration
License Server	Licensor Server 11.5 required	Licensor Server 11.5 required	License Server 11.5 required	License Server 11.5 required
License files	Licenses files must have a valid Subscription Advantage date of August 27, 2008, or later	Licenses files must have a valid Subscription Advantage date of August 27, 2008, or later	Licenses files must have a valid Subscription Advantage date of August 27, 2008, or later	Licenses files must have a valid Subscription Advantage date of August 27, 2008, or later
XenApp plugin	Citrix recommends that the XenApp plugin be upgraded to the latest version	Citrix recommends that the XenApp plugin be upgraded to the latest version	Citrix recommends that the XenApp plugin be upgraded to the latest version	Citrix recommends that the XenApp plugin be upgraded to the latest version
XenApp plugin for Streamed Apps	XenApp plugin for Streamed Apps is required in order for streaming sessions to use and share Enterprise or Platinum licenses	XenApp plugin for Streamed Apps is required in order for streaming sessions to use and share Enterprise or Platinum licenses	XenApp plugin for Streamed Apps is required in order for streaming sessions to use and share Enterprise or Platinum licenses	XenApp plugin for Streamed Apps is required in order for streaming sessions to use and share Enterprise or Platinum licenses

More details regarding licensing and client design decisions are provided below:

- **License Server 11.5.** While older versions of Presentation Server and other Citrix products can use the newest version of the License Server, the reverse is not true. This means that the newest License Server is required.
- **Licenses.** In all cases, valid licenses must be available. Please see Citrix Knowledgebase Article [CTX108655](http://support.citrix.com/knowledgebase/CTX108655) and other documents available from <http://support.citrix.com/licensing> for detailed licensing information.
- **License Vendor Daemon Port.** During installation of XenApp 5 for Windows Server 2008, the default license vendor daemon port is presented as 7279. To modify this port at a later time, use the `lsportutil` command.

- **XenApp Plugin.** Citrix recommends deployment of the most recent version of the XenApp plugin based on the platform(s) in use. This allows users to take advantage of the latest functionality and eliminates the need for another short-term upgrade. Information regarding the latest XenApp plugins and their respective capabilities are shown at <http://www.citrix.com/clientfeaturematrix>. By deploying the 11.x version of the Windows XenApp plugin client, granular control of client behavior by GPOs by means of the supported *icaclient.adm* template can be assured. [CTX112957](#) contains more information. Note that where XenDesktop and XenApp will be accessed from the same client device, the XenApp plugin 10.2x should be deployed.
- **XenApp Plugin for Streamed Apps.** To take full advantage of the new streaming capabilities, the XenApp plugin for Application Streaming 1.2 must be installed. Administrators should note that the RadeCache storage location has changed as part of the new XenApp Plugin for Streamed Apps. Previously, this had been %USERPROFILE%; now it is %USERPROFILE%\Local Settings. Thus, administrators should copy and move existing directories to create subdirectories of the RadeCache in the new location. The RadeCache directory is created by the plugin, but the movement of data during upgrade is not automatic.

## Farm and Server Decisions

The designer/architect should consider the following items and associated options when making decisions related to farms and servers:

Item/ Scenario	CPS 4.0 upgrade to XenApp 5 for Windows Server 2003	CPS 4.5 FP1 upgrade to XenApp 5 for Windows Server 2003	CPS 4.5 FP1 upgrade to XenApp 5 for Windows Server 2003 plus some XenApp 5 for Windows Server 2008	XenApp 5.0 for Windows Server 2008 migration
Farm transition	After upgrading License Server and AMC, upgrade servers to XenApp 5 for Windows Server 2003 (same as Presentation Server 4.5 installation CD), install HRP3, and upgrade existing farm components	After upgrading License Server and AMC, upgrade existing farm components	After upgrading License Server and AMC, upgrade existing farm components and add new XenApp 5 for Windows Server 2008 servers	Any
Mixed farm	May be necessary during upgrade  Supported but not recommended; some features and configurations may not function as expected and administration differs based on version  Data collector functionality should be based on XenApp 5 for Windows Server 2003 with HRP3 installed	N/A	Supported but not recommended; some features and configurations may not function as expected and administration differs based on version  Data collector functionality should be based on XenApp 5 for Windows Server 2003 with HRP3 installed	N/A
Data store	Existing database used	Existing database used	Existing database used	Create new database using any of the supported database types
Server operating system	Windows Server 2003 SP1 or higher	Windows Server 2003 SP1 or higher	Windows Server 2003 SP1 or higher and Windows Server 2008, respectively	Windows Server 2008 only

Server upgrade	Each server must be upgraded to XenApp 5 for Windows Server 2003 (same as Presentation Server 4.5 installation CD); HRP3 installation is also recommended	None required; HRP3 installation is recommended	None required for servers based on Windows Server 2003 platform but HRP3 installation is recommended; XenApp 5 for Windows Server 2008 cannot be based on an upgraded operating system	XenApp 5 for Windows Server 2008 cannot be based on an upgraded operating system
Server migration	Optional	Optional	Only required for XenApp 5 for Windows Server 2008 servers	Required for all servers

More details regarding the farm and server design decisions are provided below:

- **Farm transition.** If a farm based on Presentation Server 4.0 for Windows Server 2003 exists, it can be upgraded to XenApp 5 for Windows Server 2003 (which is the same as the Presentation Server 4.5 Server CD) and then the farm components can be upgraded to XenApp 5 for Windows Server 2003. However, Citrix recommends a migration strategy where feasible because starting with a clean farm and server build ensures that no unwanted settings are carried over into a fresh, new environment. As the initial part of the farm migration, a thorough design phase should be undertaken so that a detailed design document can be created.
- **Mixed farm.** Mixed mode is *not* recommended by Citrix because of known and potential issues. For example, because XenApp 5 for Windows Server 2003 does not incorporate Preferential Load Balancing, all sessions are granted the same mid-range preference, whereas servers based on XenApp 5 for Windows Server 2008 can be configured to provide a range of preferences. Not all mixed mode scenarios can be tested, and so it is possible that an undesired impact will occur. If mixed mode is required, it should be used for the shortest reasonable period of time. Mixed mode requires that the administration of each version is performed by the respective consoles released with that version. As an example, if a farm consists of servers based on XenApp 5 for Windows Server 2003 and XenApp 5 for Windows Server 2008, a distinct set of consoles is required for administration because the configuration options differ for each version. This may add to the complexity of administering a server farm. Where HRP3 is installed on the XenApp 5 for Windows Server 2003 servers, this must be based on the installation order defined in the [XenApp for Windows Server 2003](#) section. Where a mixed farm exists, a XenApp 5 for Windows Server 2003 server that has HRP3 installed should be designated with Data Collector functionality.
- **Data store.** Existing Presentation Server 4.5 farms that are upgraded to XenApp 5 require no changes to the Data Store. When creating a new farm, consider the database requirements for all Citrix-related databases. At this time, SQL Server 2005 is the only database type that supports all requirements.
- **Server operating system.** XenApp 5 for Windows Server 2003 requires no changes to the operating system. If transitioning to XenApp 5 for Windows Server 2008, then a clean server installation is required because upgrading the operating system from Windows Server 2003 to Windows Server 2008 and then upgrading the XenApp version is *not* supported.
- **Server Upgrade vs. Server Migration.** If upgrading from Presentation Server 4.5 to XenApp 5 for Windows Server 2003, no changes to the individual farm servers are required as only the components have been updated. However, Citrix does recommend installing HRP3 on each server. When deploying XenApp 5 on Windows Server 2008, server migration is necessary due the requirement for a clean installation of the operating system.

Every customer environment varies; therefore design decisions must be based on what is deemed best for an individual scenario. For example, a large, stable environment with 24x7 operations may find that there is a need to introduce XenApp for Windows Server 2008 into the existing Presentation Server 4.5 server farm incrementally based on application certification or location requirements. A similar customer with different business requirements may decide that a migration to a completely new farm would be best and that Web Interface can serve to bridge the two farms during the staged migration.

# Appendix: XenApp Platinum Upgrade/Migration Steps

This section details the installation order that Citrix recommends when upgrading or migrating to XenApp 5.

## General Recommendations

In general, Citrix recommends updating client devices to the most recent level first, before server-based changes are implemented. This is because client-based upgrades can usually be performed well in advance, and this allows administrators to focus on the server-based changes.

<b>General XenApp Platinum Upgrade/Migration Steps</b>	
<b>Upgrade from Presentation Server 4.5 Feature Pack 1 to XenApp 5 for Windows Server 2003</b>	<b>Migration to XenApp 5 for Windows Server 2008</b>
<ol style="list-style-type: none"><li>1. Ensure that all licensing and certificate requirements have been addressed.</li><li>2. Upgrade XenApp client-side plugins to the most recent version.</li><li>3. Upgrade License Server.</li><li>4. Upgrade .NET framework, Java Runtime Environment, Hotfix Rollup Pack and other prerequisites.</li><li>5. Upgrade Access Management Console.</li><li>6. Upgrade Web Interface.</li><li>7. Upgrade to XenApp 5.</li><li>8. Install/upgrade other Platinum components as required.</li></ol>	<ol style="list-style-type: none"><li>1. Ensure that all licensing and certificate requirements have been addressed.</li><li>2. Pre-install/upgrade XenApp client-side plugins to the most recent version.</li><li>3. Install .NET framework, Java Runtime Environment, server roles, and other prerequisites.</li><li>4. Install License Server.</li><li>5. Install Access Management Console.</li><li>6. Install Web Interface.</li><li>7. Install XenApp 5.</li><li>8. Install other Platinum components as required.</li></ol>

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